

STABLE FLOWABLE PROTEIN AND NUCLEIC ACID FORMULATIONS USING NON-AQUEOUS, ANHYDROUS, APROTIC, HYDROPHOBIC, NON-POLAR VEHICLES WITH LOW REACTIVITY

ABSTRACT

This invention relates to stable non-aqueous formulations which are suspensions of proteinaceous substances or nucleic acids in non-aqueous, anhydrous, aprotic, hydrophobic, non-polar vehicles with low reactivity. More specifically, the present invention relates to stable protein or nucleic acid formulations wherein the compound remains in stable, dry powder form, yet the formulation is flowable and, therefore amenable to delivery to an animal via injection transdermal administration, oral delivery or using an implantable device for sustained delivery. These stable formulations may be stored at elevated temperatures (e.g., 37°C) for long periods of time and are especially useful as flowable formulations which can be shipped and/or stored at high temperatures or in implantable delivery devices for long term delivery (e.g., 1-12 months or longer) of drug.